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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
COLIN, CARL G	

ART UNIT	PAPER NUMBER
2136	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/614,890	KIROVSKI ET AL.	
	Examiner	Art Unit	
	Carl Colin	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 August 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-9,12-24,26-28 and 35-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-9,12-24,26-28 and 35-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *24 May 2004* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *see att* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

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DETAILED ACTION

Response to Arguments

1. In response to communications filed on 8/5/2005, applicant amends claims 1, 7, 9, 14, 18- 22, 24, and 35. The following claims 1, 4-9, 12-24, 26-28, and 35-41 are presented for examination.

1.1 Applicant's arguments, pages 18-31, filed on 8/5/2005, with respect to the rejection of claims 1, 3-9, 11-41 have been fully considered but they are not persuasive as amended. Applicant has amended the independent claims to recite processing the signal into frames wherein each frame includes a set of blocks and to recite that a different bit of the watermark is encoded in each frame of at least one bitframe and a same bit of the covert message is encoded in each frame. Applicant mentions that the office action does not cite the new limitations as amended. However, other portions of the disclosure of Rhoads suggest preprocessing frames of image signal into set of image blocks, using one watermark per frame (column 20, lines 1-67) replicating a watermark in each block (column 9, line 60 through column 10, line 18); each raw bit (covert message) may be encoded into a watermark that implies a raw bit per frame (column 9, line 60 through column 10, line 28). See also another embodiment disclosed by Rhoads (column 27, lines 44-67). Regarding claim 16, Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably

distinguishes them from the references. Upon further consideration, claims 1, 4-9, 12-24, 26-28, and 35-41 are now rejected under 35 USC 103(a).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 14 and **23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2.1 Claim 14 recites the limitation "the digital signal" on line 13. There is insufficient antecedent basis for this limitation in the claim.

2.1 Regarding claim 23, claim 23 recites an operating system having a program module comprising a system that includes a receiver, an imposer coupled to a receiver, and an encoder coupled to the imposer and receiver. This claim is indefinite as claiming an operating system/program (computer executable instructions) containing a system (hardware components).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 16-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention as a whole must accomplish a practical application and must produce a useful, concrete, and tangible result. In this instance, "a method for imposing a covert message into a watermark by generating multiple watermarks, assigning each watermark to discrete value of the covert message, and selecting a watermark that corresponds to a discrete value of the covert message, and encoding the watermark into a digital signal" does not produce a useful, concrete, and tangible result. *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. MPEP 2106.

Claims 24 and 26-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is directed to a marked signal embodied on a computer-readable medium. The marked signal does not recite any functional element, therefore the claim is directed solely to non-functional descriptive material.

Specification

4. The abstract of the disclosure is objected to because the language of the abstract should avoid using phrases that implies the disclosure describes. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means"

and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.1 **Claims 1, 4-9, 12-15, 18-24, 26-28, and 35-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,614,914 to **Rhoads et al** in view of US Patent 6,449,378 to **Yoshida et al**.

5.2 **As per claims 1, 7, 35-36,** and **40-41, Rhoads et al** discloses a method for concealing data within a digital signal, the method comprising: **Rhoads et al** discloses receiving a first data pattern of discrete values which are bits of a watermark and a second data pattern of discrete values which are bits of a carrier or raw bit or control parameter depending on the embodiment

that meets the recitation of covert message (see column 6, line 50 through column 7, line 40 and column 9, line 35 through column 10, line 27); imposing a discrete value of the second data pattern over one or more discrete values of the first data pattern to generate a third data pattern (watermarked signal) and encoding a third data pattern into the digital signal (column 7, line 17 through column 8, line 30; column 9, line 60 through column 10, line 18 and column 11, lines 7-32). See also column 3, lines 4-20 and figures 1 and 2. **Rhoads et al** suggests using any non-linear function and further discloses using a spread spectrum modulation wherein the imposing is carried out by performing a Boolean operation with a discrete value of the second data pattern and discrete value of the second data pattern and multiple discrete values of the first data pattern (see column 16, line 45 through column 17, line 10); **Rhoads et al** suggests that the host signal may be, audio or video as well and may be divided into different time frames and further discloses preprocessing frames of image signal into set of image blocks that meets the recitation of processing the digital signal into a series of bitframes, wherein each bitframe includes a set of frames and wherein each frame includes a set of blocks (column 2, lines 3-61 and column 20, lines 1-67). **Rhoads et al** also suggests replicating a watermark in each block (column 9, line 60 through column 10, line 18) and using one watermark per frame (column 20, lines 1-67) that meets the recitation of wherein a different bit of the watermark is encoded in each frame of a set of frames and the different bit is repeated in each block; each raw bit (covert message) may be spread into a number of chips or defining a pattern of watermark samples which implies that since a watermark can occupy a number of frames, the same raw bit can be replicated in a number of frames that meets the recitation of a same bit of the covert message is encoded in each frame of a set of frames (column 9, line 60 through column 11). See also another embodiment

disclosed by Rhoads (column 27, lines 44-67) and Digimarc's Watermarking Technology (column 37, line 35 through column 38). **Yoshida et al** in a an analogous art discloses a method and apparatus of embedding watermark information in a moving image constituted by a plurality of frames wherein one bit of the watermark information may be embedded one by one in each frame (column 2, line 65 through column 3, line 7 and column 9, lines 30-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to encode a different bit of one watermark information in each frame and a same bit of another watermark information in each frame of a set of frames as suggested by Rhoads and Yoshida. One skilled in the art would have been lead to make such a modification because it would prevent using too many bits to encode the image making detection of the watermark signal less cumbersome as suggested by **Yoshida et al** (see column 3, lines 25-56 and column 10, lines 51-65).

Claims 8, 18, 20, 22, and **23,** recite the same limitation as the rejected claim 1 except for incorporating the claimed method into a computer readable medium, a system, or an apparatus. **Rhoads et al** implements the invention in apparatus and system (see figures 1 and 2). Therefore, claims 8, 18, 20, 22, and 23 are rejected on the same rationale as the rejection of claim 1.

As per claims 9, 13, 19, and **21, Rhoads et al** discloses a method and apparatus for revealing a covert data pattern of discrete values from an encoded data pattern of discrete values in a digital signal, the method comprising: receiving a digital signal the digital signal having a watermark encoded therein the watermark being an encoded data pattern of discrete values is

encoded into the signal in one of multiple discrete states, the encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern, for example (column 7, lines 27-67); extracting a discrete value of the covert data pattern from one or more values of the encoded data pattern wherein the extracting is carried out by decoding a single discrete value of the covert data pattern from the digital signal based upon a state of a multiple discrete values of the encoded data pattern (see column 8, line 50 through column 9, line 17; column 31, lines 35-51). See also column 6, line 50 through column 7, line 40 and column 9, line 35 through column 10, line 27. Claims 9, 13, 19, and 21 recite similar limitations as found in claim 1 and therefore is rejected on the same rationale as in the rejection of claim 1.

As per claim 24, claim 24 recites same inventive concept as claims 1 and 9 except for replacing the second pattern by a covert channel and the first pattern by the watermarked signal. **Rhoads et al** also discloses an orientation pattern or control bits or carrier or key or detection pattern that meets the recitation of covert data pattern (column 7, line 60 through column 7, line 17). Therefore claim 24 is rejected on the same rationale as the rejection of claims 1 and 9.

As per claims 4, 26, and **37, Rhoads et al** discloses the limitation of wherein the Boolean operation is XOR (see column 16, lines 45-60).

As per claims 5, 27, and **38, Rhoads et al** discloses the limitation of wherein a pattern of discrete values may be encoded into the signal in one of multiple discrete states (see column 16, line 45 through column 17, line 10); the imposing comprises encoding multiple values of the first

data pattern into the digital signal into a state that indicates a single discrete value of the second data pattern (see column 17, lines 1-20).

As per claims 6, 12, 28, and **39, Rhoads et al** discloses the limitation of wherein the digital signal is selected from a group of consisting of a digital audio signal, a digital video signal, a digital image signal, and a digital multimedia signal (see column 4, lines 50-63).

As per claim 14, Rhoads et al discloses a method for encoding a watermark with a covert message into a digital audio signal, wherein binary bits of the watermark may be encoded into the signal in multiple states, the method comprising encoding multiple bits of the watermark into the digital signal into a state that indicates a single discrete value of the covert message (see column 16, line 45 through column 17, line 20). Claim 14 recites similar limitations as found in claim 1 and therefore is rejected on the same rationale as in the rejection of claim 1.

As per claim 15, Rhoads et al discloses the limitation of wherein the multiple states are positive or negative modifications to magnitudes of one or more subbands in the frequency spectrum of a sample of the signal (column 12, lines 7-25 and column 13, lines 4-18).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter

sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.1 **Claims 16 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,614,914 to **Rhoads et al** in view of US Patent 5,745,604 to **Rhoads**.

6.2 **As per claims 16** and **17, Rhoads et al** substantially teaches a method for imposing a covert message into a watermark, the method comprising: generating multiple watermarks, for example (see column 7, lines 17-26); assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message (see column 9, line 35 through column 10, line 28 and column 10, line 28 through column 11, line 38; and column 6, line 50 through column 8); selecting a watermark corresponding to a an actual discrete value of a specific portion of a covert message (see column 9, line 35 through column 10, line 28 and column 10, line 28 through column 11, line 38; and column 6, line 50 through column 8); **Rhoads et al** discloses that some bits may be further encoded compared to other bits that meets the recitation of without encoding any portion of the cover message itself into a digital signal encoding the selected watermark into the digital signal (column 16, lines 35-43; column 17, lines 1-10 and 56-64 and column 19, lines 4-15). **Rhoads** discloses in an analogous art generating multiple watermarks (column 11, lines 50-67 *US Patent 5,745,604*) wherein the size of covert message with N bits long resulting into 2^N multiple watermarks, for example (see column 3, lines

35-45 and column 4, lines 8-37 *US Patent 5,745,604*), which provides an efficient way to identify a watermark and adds additional noise as desired. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify to provide a N-bit identification word as a unique identification binary value to identify a watermark and adds additional noise as desired wherein the size of all portions of the covert message is N bits long and wherein the number of the multiple watermarks is 2^N as taught by **Rhoads**. One skilled in the art would have been motivated to make such a modification because it would provide an efficient way to identify a watermark and add additional noise as desired as suggested by **Rhoads** (column 15, line 10 trough column 16, line 2).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. US Patent 6,208,745 to Florencio et al discloses a method and apparatus that inserts watermark information in a video bitstream divided into blocks and sets of frames wherein the same watermark information can be contained in the same block, the watermark information may change from frame to frame to provide a flexible and robust image.

b. US Patent Publication US 2001/0000701 to Carneheim et al discloses synchronizing data frames across plurality of data channels by inserting one bit in a set of data frames.

7.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Colin whose telephone number is 571-272-3862. The examiner can normally be reached on Monday through Thursday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cc

Carl Colin
Patent Examiner
October 12, 2005

AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
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